

REMARKS

Claims 13 and 15-29 are pending.

The Rejections under 35 U.S.C. § 102(e) Should Be Withdrawn

The Examiner has rejected claims 13, 15-22 and 24-25 under 35 U.S.C. § 102(e) as being anticipated by Hahn (US 6,517,653). In response, applicants submit herewith a certified English language translation of the French priority document, FR 97/08839, to perfect the claim for priority.

Applicants submit that the present application is entitled to the filing date of French application No. 97/08839, filed July 9, 1997, to which the present application claims priority. The priority claim was made at the time of filing and accompanied by a copy of the priority document. The priority date of July 9, 1997 was acknowledged in the Notification of Missing Requirements mailed February 28, 2000 and on the filing receipt mailed June 6, 2000.

Applicants submit that the priority date of the present application falls before the earliest priority date of the cited art, Hahn. Hahn is a continuation-in-part application, filed December 4, 2000, of two prior abandoned applications. The earlier of the two applications, U.S. Application Serial No. 08/915,413, was filed on Aug. 20, 1997. Since the priority date of the present application is July 9, 1997, applicants submit that Hahn cannot anticipate the presently claimed invention. Applicants respectfully request the withdrawal of rejection of claims 13, 15-22 and 24-25 under 35 U.S.C. § 102(e).

The Rejections under 35 U.S.C. § 103(a) Should Be Withdrawn

The Examiner has maintained the rejection of claims 13, 15-22, and 24-27 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Hojo (US 5,939,493) in view of Jalics et al. (US 5,708,053; "Jalics"). The Examiner alleges that it would have been obvious to one of ordinary skill in the art to use the guanidine disclosed in Jalics et al. to control the time and temperature for vulcanization of the rubber composition of Hojo to arrive at the presently claimed composition.

The Examiner has pointed out a discrepancy in the discussion of the expected behavior of a virtual control rubber composition in the Preliminary Amendment mailed May 22, 2003. In particular, the Examiner indicates that the Preliminary Amendment incorrectly states that control composition 17' should exhibit  $\text{tg}\delta$  and  $G''$  values that are less than  $\text{tg}\delta$  and  $G''$  values exhibited by composition 17. The Examiner also cited the Declaration and the specification in support of higher  $\text{tg}\delta$  and  $G''$  values exhibited by the control composition. The Examiner has requested clarification of this point.

In response, applicants acknowledge that an inadvertent error was made at page 13, line 10 and Table 1 at page 14 of the filed Preliminary Amendment. In other words, control composition 17' should exhibit  $\text{tg}\delta$  and  $G''$  values that are **greater than**  $\text{tg}\delta$  and  $G''$  values of composition 17. Applicants would like to point out to the Examiner that the discussion of the expected  $\text{tg}\delta$  and  $G''$  values in both the specification and the Declaration signed by the inventor comport with this interpretation. Applicants apologize for the confusion created by the error and submit corrected arguments below.

Applicants submit that the presence of guanidine in the presently claimed composition is critical to the desired properties of reduced hysteresis exhibited by the compositions. Reduced hysteresis is exhibited by rubber compositions of the present invention in comparison to rubber compositions without guanidine. The reduced hysteresis occurs in the presence or absence of amine. The Examiner has previously indicated that a proper side-by side comparison of the composition of the present invention containing guanidine and amine with a control containing comparable amounts of amine in the absence of guanidine would be required to establish that guanidine is, in fact, critical, imparting to the composition the desired property of reduced hysteresis.

In support of the argument that the addition of guanidine confers reduced hysteresis, applicants direct the Examiner's attention to the Declaration of Gerard Labauze ("Declaration"), mailed with the Preliminary Amendment on May 22, 2003. The Declaration provides support for the use of a "virtual" control composition 17', comparable to control composition 17 of Example 4. Control composition 17 is a rubber composition comprising (1) a polymer, (2) silica as a filler, (3) a silica/polymer linking agent, and (4) the aliphatic amine, dodecylhexamethylenemine (DDCHMI) in the amount of 7.1 mmol. In comparison, the virtual control composition 17' is a rubber composition comprising (1) a polymer, (2) silica as a filler, (3) a silica/polymer linking agent, and (4) the aliphatic amine, dodecylhexamethylenemine (DDCHMI) in the amount of 4.5 mmol. The components of the two compositions, 17 and 17', vary only in the amount of DDCHMI. The presence of hydroxyl groups on silica particles in a rubber composition promote undesired interactions between silica particles, increasing hysteresis loss. These interactions can be shielded by covering agents, e.g. free amines, such as DDCHMI.

Decreasing the amount of DDCHMI in a rubber composition would cause a decrease in the coating, or covering, of these hydroxyl groups, promoting the interactions between silica and creating increased hysteretic losses. Given that all components other than DDCHMI of virtual control composition 17' are identical to components of composition 17, measurements of the deformation in the virtual control composition 17' would produce a  $\text{tg}\delta$  greater than 0.308 and  $G''$  greater than 1.050 (see Table 1 below).

Example 4 of the specification shows a side by side comparison of composition 19, which is a rubber composition vulcanizable with sulfur and usable as a tire tread, comprising (1) a polymer, (2) silica as a filler, (3) a silica/polymer linking agent, (4) a guanidine (diphenylguanidine; DPG), and (5) an aliphatic amine (dodecylhexamethylenimine; DDCHMI), with various control compositions 16-18. Composition 19 contains 7.1 mmol DPG and 4.5 mmol DDCHMI, whereas virtual control composition 17' contains 4.5 mmol DDCHMI. Comparison of composition 19 with virtual control composition 17', at low deformation ( $\text{tg}\delta$  and  $G''$ ), shows that the composition of the present invention, 19, demonstrates an improved reduced hysteresis in comparison to the control composition 17' (Table 1).

Table 1. Comparison of composition 19 with control and virtual control compositions

(adapted from Table 5 at page 34 of the specification)

Composition	16	18	17	17' (virtual)	19
guanidine/ DPG (mmol)	7.1	11.8	none	<b>none</b>	7.1
amine/ DDCHMI (mmol)	none	none	7.1	<b>4.5</b>	4.5
tg δ	0.355	0.306	0.308	<b>greater than 0.308</b>	0.254
G"	1.230	0.872	1.050	<b>greater than 1.050</b>	0.605

In addition, comparison of composition 19, having 7.1 mmol of DPG and 4.5 mmol of DDCHMI, with control composition 16, having 7.1 mmol of DPG, also demonstrates the superior results obtained with the combined use of guanidine (DPG) and amine (DDCHMI). Composition 19 shows a reduced hysteretic loss in comparison to control composition 16 (tg δ - 0.254 in comparison to 0.355 and G" - 0.605 in comparison to 1.230).

These results show that the addition of guanidine to the rubber composition impart to the rubber composition reduced hysteresis, which is critical for obtaining this desired property.

Applicants respectfully request that, in view of this evidence, the prior art rejection of claims 13, 15-22 and 24-27 under 35 U.S.C. § 103(a) be withdrawn.

In addition, claims 28-29 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Hahn in view of EP 0 451 604. The Examiner alleges that it would be obvious to one of ordinary skill in the art to use the diene polymer of EP 0 451 604 in the rubber composition of Hahn in order to form a composition which produces a tire tread with reduced

rolling resistance and increased rebound resistance to arrive at the present invention.

Applicants submit, as indicated above at page 8, that Hahn is not prior art to the present application. The priority date of the present application falls on July 9, 1997, which is prior to the earliest priority date for Hahn. Therefore, Hahn, cannot be cited as prior art against the present application. Applicants respectfully request the withdrawal of the rejection of claims 28 and 29 under 35 U.S.C. § 103(a).

Furthermore, claims 28-29 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Hojo in view of Jalics and EP 0 451 604. The Examiner alleges that Jalics provides motivation for the use of guanidine and the specific type of diene polymer of EP 0 451 604 in the diene polymer of Hojo to control vulcanization parameters to form a composition which produces a tire tread with reduced rolling resistance and increased rebound resistance to arrive at the present invention. For the reasons indicated at page 10-12, applicants submit that claims 28 and 29 are not unpatentable over Hojo in view of Jalics and EP 0 451 604 and respectfully request the withdrawal of claims 28 and 29 under 35 U.S.C. § 103(a).

#### Allowable Subject Matter

The Examiner has objected to claim 23 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants submit that claim 23 is dependent upon allowable claims 13 and 22. Therefore, applicants believe that no amendment is necessary to place claim 24 into independent form.

CONCLUSION

Based on the foregoing remarks, reconsideration and withdrawal of the rejections are respectfully requested. Applicants submit that the present application is in condition for allowance and a Notice of Allowance is respectfully requested.

Applicants request a one month extension of time and enclose herewith the requisite fee as set forth in 37 C.F.R. § 1.17(a)(1). Applicants do not believe that any additional fee is required in connection with the submission of this document. The Commissioner is hereby authorized to charge payment of any fees or credit any overpayment made in association with this communication to Deposit Account No. 02-4377. Duplicate copies of this page are enclosed.

Respectfully submitted,  
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